

DWR OROVILLE FACILITIES RELICENSING PROJECT (FERC Project No. 2100)

STUDY #8: TEMPERATURE IMPACTS OF PUMPBACK OPERATION ON OROVILLE RESERVOIR COLD WATER POOL

DECEMBER 12, 2001

1.0 INTRODUCTION/BACKGROUND

Water from the Thermalito Complex is pumped back up into the Oroville Reservoir for power generation purposes. Since the water in the Thermalito Complex is typically warmer than the water that is being released from Oroville Reservoir there is a concern that pumpback operations are returning warmer water to Oroville Reservoir and having a negative impact on the cold-water pool in the reservoir. There is currently no data available on this phenomenon.

2.0 STUDY GOAL(S) AND OBJECTIVE(S)

This purpose of this study is to quantify the impact of pumpback operations on the cold-water pool in Oroville Reservoir.

3.0 RELATIONSHIP OF THE STUDY PLAN TO RELICENSING PROJECT PROCESS/PURPOSE AND NEED FOR THE STUDY

Relationship of the Study Plan to Relicensing Project Process

As part of the relicensing process questions have been raised about the potential impacts of pumpback operations at Hyatt Powerplant on Oroville Reservoir temperatures. There is no existing data available to answer these questions. This study is designed to address the issue.

Purpose and Need for the Study

The purpose of this study is to quantify the impacts of pumpback operations at Hyatt Powerhouse on the cold-water pool in Oroville Reservoir. This information is required to see if the impact is sufficient to justify consideration in Oroville Reservoir temperature model development and application or if it can be ignored in the analysis.

4.0 SCOPE – STUDY AREA

The study area includes the Oroville Reservoir and the Thermalito Forebay – Afterbay complex.

5.0 NG PROCESS.

cts/Deliverables

The final deliverable of this study will be a report on installed and data collected from generation/pumpback operations at Hyatt Powerplant. Initial discussions with DWR operators have shown that the required data does not currently exist.

Detailed Methodology and Analysis Procedures

Task 1. Review Existing Data

This task will review existing data on pumpback operations and Oroville Reservoir temperature profiles.

Task 2. Install required temperature an/or reservoir profile sensors

This task will be to define locations where additional temperature and/or operational data may be required in order to perform the analysis. Instrumentation to collect the data will be installed. Desirable temperature information includes:

- Reservoir profile(s) around intake structure
- Penstock Temperature
- Hyatt Tailrace Temperature
- Diversion pool temperature.

Task 3. Perform pumpback tests

This task involves the collection of data during periods of release and pumpback operations. The Data collected will include:

- Release flow and temperature
- Pumpback flow and temperature
- Oroville Reservoir temperature profiles around the Hyatt intake structure

Task 4. Analyze the results

The observed data will then be analyzed to see if the pumpback operations have an impact on the cold-water pool in Oroville Reservoir.

Task 5. Write final report

Complete a report documenting the procedures and results of the evaluation. The report will include recommendations on how pumpback impacts on Oroville cold-water pool and operations should be handled in the modeling for the process.

6.0 RESULTS AND PRODUCTS/DELIVERABLES

Results

The results of this study will provide information on pumpback impacts on Oroville cold-water pool and temperature operations. This information will be useful in both Oroville Reservoir Temperature model development and in the performance of alternative operational simulations during the relicensing process.

Products/Deliverables

The final deliverable of this study will be a report on the impacts of pumpback operations on Oroville cold-water pool and temperature operations. The report will be suitable for use in model development and simulations to provide guidance on appropriate operation requirements and/or guidelines for temperature in the Lower Feather River.

7.0 STUDY PLAN COORDINATION AND IMPLEMENTATION STRATEGY

Coordination with Other Resource Areas/Studies

This study will be coordinated with a number of other Engineering and Operation study plans:

Study Plan No. 1c - Oroville Reservoir Temperature Model Development

Study Plan No. 1e - Feather River Temperature Model Development

Study Plan No. 2 - Modeling Simulation

Study Plan No. 7 - Oroville Reservoir Cold Water Pool Analysis

Study Plan No. 8 - Temperature Impacts of Pumpback Operations at Oroville Reservoir

Study Plan Tracking/Regulatory Compliance Requirements

None

8.0 REFERENCES

ATTACHMENTS

None